

REMARKS

Claims 1-39 are pending in the application. The Examiner has rejected Claims 1, 2, 9, 14-19, 21, 22, 25, 26, 29, 30, and 36-39 and objected to Claims 3-8, 10-13, 20, 23, 24, 27, 28, 31, and 32. Claims 33-35 are allowed.

Claim Rejections Under 35 U.S.C. §102

The Examiner rejected Claims 25, 26, 29, and 30 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,376,866 (hereinafter "Erdman '866"). Applicants respectfully submit that Erdman '866 does not disclose a method for detecting a locked or stopped rotor in a motor control system having a plurality of phase coils driven by power drivers including the steps of *momentarily and substantially simultaneously disabling all of the power drivers*; then measuring the back EMF generated from the plurality of phase coils *while all of the power drivers are momentarily disabled*; and then enabling all of the power drivers after a time period dependent on the measured back EMF, as called for in amended Claim 25.

Applicants respectfully submit that the phrase "substantially simultaneously disabling all of the power drivers" means that all power drivers are disabled during a period of time. The phrase does not indicate that all power drivers are disabled at the exact same moment in time, but instead that the last power driver to be disabled is disabled prior to enabling the first power driver in the sequence, i.e., all power drivers are disabled for at least a short period of time during which the back EMF is measured for fault detection purposes.

Additionally, as an initial matter, Applicants respectfully submit that the present invention is directed to fault detection and, in contrast, Erdman '866 is directed to commutating windings in a motor.

Erdman '866 discloses a circuit for detecting back EMF of a motor winding, as shown in Figs. 25a-25b, including operational amplifier 382. The circuit functions to sequentially drive power transistors 362 and 364 and to initiate the drive signal when the rotor-mounted permanent magnets of the motor are optimally located with respect to the winding to be turned on. This optimal location is derived from the back EMF voltage of the next winding in the drive sequence. Operational amplifier 382 integrates this back EMF voltage and, when the integrated voltage reaches a reference voltage level, the succeeding logic parts are made to change state and to sequence or index to the next winding energizing event. The power transistors 362 and 364 for the "on" winding remain enabled during integration of the back EMF voltage by operational

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amplifier 382 on the next sequential winding. Nowhere does Erdman '866 disclose substantially simultaneously disabling *all of* the power drivers, then measuring the back EMF voltage while *all of* the power drivers are momentarily disabled, and then enabling all of the power drivers, as called for in amended Claim 25. Therefore, clearly Claim 25, and Claims 26, 29, and 30 depending therefrom, are not anticipated by Erdman '866.

Claim Rejections Under 35 U.S.C. §103

The Examiner rejected Claims 1, 2, 9, 14-19, 21, 22, and 36-39 under 35 U.S.C. §103(a) as being unpatentable over Erdman '866. The disclosure of Erdman '866 is discussed above. Nowhere does Erdman '866 disclose or suggest a method or apparatus for a motor control system including measuring the back EMF voltage of the phase coils while *all of* the output drivers are momentarily *and substantially simultaneously* disabled, as called for in independent Claims 1, 9, 18, and 36. Therefore, clearly Claims 1, 9, 18, and 36, and Claims 2, 14-17, 19, 21, 22, and 37-39 depending therefrom, are neither anticipated nor rendered obvious by Erdman '866.

Allowable Subject Matter

Applicants appreciate the Examiner's allowance of Claims 33-35 and the indication of allowable subject matter in Claims 3-8, 10-13, 20, 23, 24, 27, 28, 31, and 32. Applicants have amended Claims 4, 10, 20, 23, 24, 27, 28, and 31 to include the limitations of the base independent claim, and, as such, Applicants respectfully submit that Claims 4-8, 10-13, 20, 23, 24, 27, 28, and 31 are in condition for allowance. Additionally, Applicants respectfully submit that, in view of the above arguments, Claims 3 and 32 are in condition for allowance.

It is believed that the above represents a complete response to the Office Action and reconsideration is requested.

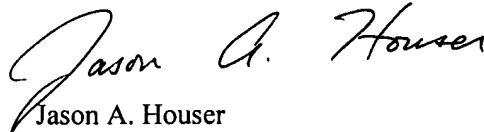
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In the event Applicants have overlooked the need for an extension of time or payment of fee, Applicants hereby petition therefor and authorize that any charges be made to Deposit Account No. 02-0385, BAKER & DANIELS.

If any questions concerning this application should arise, the Examiner is encouraged to telephone the undersigned at 260/424-8000.

Respectfully submitted,



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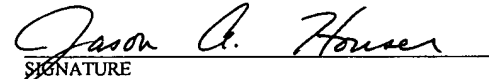
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